

Appn. Number: 09/173,828  
Group Art Unit: 3748  
Appn. Filed: 1998 Oct 16  
Applicant: Jesus Vazquez  
Title: Continuous Flow Expandable Chamber & Dynamic Displacement Rotary Devices  
Examiner: Michael Koczo, Jr.

CP  
8/23/00

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6/a

San Juan, PR 2000 July 10

### Amendments

United States Department Of Commerce  
Patent and Trademark Office  
Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Attn: Mr. Michael Koczo, Jr.

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Dear Mr. Koczo:

In response to the Office Action Summary mailed on 10 April 2000, please amend the above application as per enclosed claims 8 through 35 substituting the original 7 claims under article 19 amendment.

Please excuse the errors in my original claims. Because of financial and time constraints I was forced to try and file this patent and response on my own without the aid of an attorney.

During my searches I was unable to come up with anything even closely resembling prior art. Thanks to your Notification of References Cited and its enclosures I was made aware of the existence of the seven documents considered to be relevant and through another source I was made aware of yet other possibly relevant prior art patents which I have included in this writing. Having no prior knowledge of these documents I naturally submitted what I

believed to be the broadest claims possible.

The enclosed amended claims reflect what is my understanding to be novel, useful and unobvious elements and attributes of my invention in relation to the submitted documents considered to be relevant. These new claims also better define and more distinctly claim the subject matter of my invention.

With the following I attempt to explain the novel differences between my invention and the inventions submitted in the documents considered to be relevant.

Clark Ford patent #3912,948

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow (see Ford patent page 3 lines 31, 35, 58 and 59). It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition (line 58-59) and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

M. Pierre Gerschel patent #1.055.946

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and

apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

Keamon Kurose patent #3,176,664

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

Hunter patent #1,097,548

A. Much greater power is required to push and slide a perpendicular wall acting as a valve (abutment #22a) also such action in this design causes greater wear and vibration. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

My design requires less power with less wear and vibration due to the nature of the movement required to actuate the waving or flapping valve (valve 56 and 67).

B. Fuel and air coming together before entering the combustor is dangerous and inefficient (pipe # 36).

My design brings the fuel and the air together inside the inner reaction cage of the combustor eliminating the danger of explosion and preventing pre-ignition and timing problems (#52, 53 and 65).

C. Governor controlled fuel supply is inefficient and consumes mechanical power (governor #52).

My design utilizes and electric pump or suction.

D. Cam operated fuel inlet valve consumes power and is inefficient.

My design utilizes pressure controlled check valves (#53).

E. Flywheel adds complexity, weight and consumes power.

My design incorporates the flywheels function into the rotor and pistons using less power having less weight and being simpler (#39a, 76 and 76a).

F. Separate fuel mixture compressing device or pump is inefficient, consumes a great amount of power and makes the engine more complex.

My design uses a passive two step compression process that is more efficient uses no power or moving or additional parts. It is simple and passive controlled stratified flashover (see Operation Main Embodiments, #65, 62, 74, 102) as well as the action of the valve itself.

G. Cycled or intermittent combustion and cam activated sparking device prone to ignition problems and operation inefficiency (#25, 26 and 27).

My design is a continuous combustion engine with initial electric or electronic ignition.

H. Perpendicular combustion introduction onto working surfaces is wasteful and inefficient.

My design optimizes oblique angles for the introduction of combustion and exhaust allowing for the utilization of impinging force upon piston faces or tops said impinging force contributes substantial power to the engine, said power increases exponentially as revolutions (rpm) increase.

I. Inefficient valve design and its limited function as well as sectioned power pulses and multicycled combustion limit this engine's performance and efficiency dramatically.

My design utilizes continuous combustion and dynamic displacement with a valve that can act as a fluidic amplifier combining positive displacement with the dynamic effect.

Williams patent #1,369,070

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

B. External power robbing compression piston is more complex and inefficient  
My design uses a passive two step compression process that is more efficient uses no power or moving or additional parts. It is simple and passive controlled stratified flashover (see Operation Main Embodiments, #65, 62, 74, 102) as well as the action of the valve itself.

C. Perpendicular combustion introduction onto working surfaces is wasteful and inefficient.

My design optimizes oblique angles for the introduction of combustion and exhaust allowing for the utilization of impinging force upon piston faces or tops said impinging force contributes substantial power to the engine, said power increases exponentially as revolutions (rpm) increase.

D. Inefficient valve design and its limited function as well as sectioned power pulses and multicycled combustion limit this engine's performance and efficiency dramatically.

My design utilizes continuous combustion and dynamic displacement with a valve that can act as a fluidic amplifier combining positive displacement with the dynamic effect.

E. Fuel and air coming together before entering the combustor is dangerous and inefficient (pipe # 51).

My design brings the fuel and the air together inside the inner reaction cage of the combustor eliminating the danger of explosion and preventing pre-ignition and timing problems (#52, 53 and 65).

F. Sectioned power pulses and multicycled combustion limit this engine's performance and efficiency dramatically.

My design utilizes continuous combustion and dynamic displacement with a valve that can act as a fluidic amplifier combining positive displacement with the dynamic effect.

G. Flywheel adds complexity, weight and consumes power.

My design incorporates the flywheels function into the rotor and pistons using less power having less weight and being simpler (#39a, 76 and 76a).

H. Design and function of valve in this design causes greater wear and vibration.

My design requires less power with less wear and vibration due to the nature of the movement required to

actuate the waving or flapping valve (valve 56 and 67).

Victor R. Stewart patent #650,661

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

Donald D. Koser patent #2,821,176

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler



and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

Winfred A. Bratten patent #3,913,534

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

Sherman patent #2,005,137

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion

especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

My design uses a passive two step compression process that is more efficient uses no power or moving or additional parts. It is simple and passive controlled stratified flashover (see Operation Main Embodiments, #65, 62, 74, 102) as well as the action of the valve itself.

B. The way the valve lays on the rotor and pistons in this design causes greater wear and lubrication problems.

My design requires less power with less wear and vibration due to the nature of the movement required to actuate the waving or flapping valve and the type of contact that it makes with the rotor and pistons (valve 56 and 67).

C. Sectioned power pulses and multicycled combustion limit this engine's performance and efficiency dramatically.

My design utilizes continuous combustion and dynamic displacement with a valve that can act as a fluidic amplifier combining positive displacement with the dynamic effect.

D. Perpendicular combustion introduction onto working surfaces is wasteful and inefficient.

My design optimizes oblique angles for the introduction of combustion and exhaust allowing for the utilization of impinging force upon piston faces or tops said impinging force contributes substantial power

E. This engine design utilizes a compression cycle and mechanism that is more complex and inefficient.

My design uses a passive two step compression process that is more efficient uses no power or moving or additional parts. It is simple and passive controlled stratified flashover (see Operation Main Embodiments, #65, 62, 74, 102) as well as the action of the valve itself.

Jay patent #2,116,897

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

B. Design of piston face or top does not allow for the optimum utilization of impinging force from combustion introduction onto working surfaces is wasteful and inefficient causing excessive wear and hot spots.

My design optimizes oblique angles for the introduction of combustion and exhaust allowing for the utilization of impinging force upon piston faces or tops said impinging force contributes substantial power

C. Sectioned power pulses and multicycled combustion limit this engine's performance and efficiency dramatically.

My design utilizes continuous combustion and dynamic displacement with a valve that can act as a fluidic amplifier combining positive displacement with the dynamic effect.

D. Sealing of discharge ports and other numerous cams, rods and levers consume power are complex and inefficient.

My design utilizes oblique angles open ports that are sealed by the passing of the pistons only and electric pumps minimizing the need for the engine to mechanically power these devices.

E. This engine design utilizes a compression cycle and mechanism that is more complex and inefficient.

My design uses a passive two step compression process that is more efficient uses no power or moving or additional parts. It is simple and passive controlled stratified flashover (see Operation Main Embodiments,

F. Fuel and air coming together before entering the combustor is dangerous and inefficient (intake port #31).

My design brings the fuel and the air together inside the inner reaction cage of the combustor eliminating the danger of explosion and preventing pre-ignition and timing problems (#52, 53 and 65).

Langcaster patent # 536,690

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

B. This engine design utilizes a compression cycle and mechanism that is more complex and inefficient.

My design uses a passive two step compression process that is more efficient uses no power or moving or additional parts. It is simple and passive controlled stratified flashover (see Operation Main Embodiments,

C. Sectioned power pulses and multicycled combustion limit this engine's performance and efficiency dramatically.

My design utilizes continuous combustion and dynamic displacement with a valve that can act as a fluidic amplifier combining positive displacement with the dynamic effect.

D. Fuel and air coming together before entering the combustor is dangerous and inefficient.

My design brings the fuel and the air together inside the inner reaction cage of the combustor eliminating the danger of explosion and preventing pre-ignition and timing problems (#52, 53 and 65).

Pertoldi and Cagliari Patent # 411,611

A. This invention clearly describes an apparatus that is limited by its design to be of intermittent combustion and flow. It utilizes a separate compression cycle and apparatus to achieve this and is prone to pre-ignition and catastrophic explosion especially after the engine warms and severe wear as well as other obvious shortcomings with more parts and components.

My invention utilizes continuous combustion or flow and utilizes a passive compression method all of which are unique to its design which is also simpler and has fewer moving parts thus eliminating the problem of pre-ignition, ping and piston slap and greatly enhancing the efficiency and durability of my device. In a separate embodiment of my invention I incorporate a means to combine the dynamic effect with positive displacement, thereby creating a unique and novel device and effect that I call dynamic displacement further enhancing efficiency, reliability and durability.

B. Inefficient valve design and its limited function as well as sectioned power pulses and multicycled combustion limit this engine's performance and efficiency dramatically.

My design utilizes continuous combustion and dynamic displacement with a valve that can act as a fluidic amplifier combining positive displacement with the dynamic effect.

C. Fuel and air coming together before entering the combustor is dangerous and inefficient.

My design brings the fuel and the air together inside the inner reaction cage of the combustor eliminating the danger of explosion and preventing pre-ignition and timing problems (#52, 53 and 65).

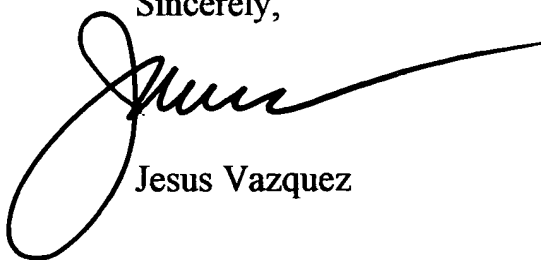
D. This engine design utilizes a compression cycle and mechanism that is more complex and inefficient.

My design uses a passive two step compression process that is more efficient uses no power or moving or additional parts. It is simple and passive controlled stratified flashover (see Operation Main Embodiments,

And many other unique design differences that exist between these designs and my own that are obvious. The simplicity of the design and construction of my invention permits more economical manufacturing of same in an environmentally friendly manner.

One consideration that applies to all of these designs considered to be relevant is that they all were designed before modern day emission control legislation was enacted. These were designed at a time when not much consideration was given to environmental pollution. I, however, designed my engine to meet the strictest air pollution standards and am confident that if given the chance to commercialize this engine we would all have taken a major step toward reducing environmental pollution.

Sincerely,



Jesus Vazquez

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